Dean K. Matsuura
Manager
Regulatory Affairs

August 17, 2009

FILED
2009 AUG 17 P 4:22
PUBLIC UTILITIES COMMISSION

The Honorable Chairman and Members of the
Hawaii Public Utilities Commission
Kekuanaoa Building, 1st Floor
465 South King Street
Honolulu, Hawaii 96813

Dear Commissioners:

Subject: Docket No. 2008-0303 – Advanced Metering Infrastructure Project
Hawaiian Electric Companies' Responses
to the Commission's Information Requests

The Commission submitted Information Requests ("IRs") prepared by the Commission's consultant, the National Regulatory Research Institute, by letter dated July 16, 2009 in the subject proceeding.

For reference purposes, the Hawaiian Electric Companies have renumbered PUC-IR-1 through PUC-IR-8 to follow in sequential order of the IRs previously submitted by the Commission. This was done to avoid confusion with previous IRs which were similarly numbered.[1]

Enclosed are the Hawaiian Electric Companies' responses to PUC-IRs 17 to 24.

Very truly yours,

for Dean K. Matsuura
Manager, Regulatory Affairs

Enclosures

cc: Division of Consumer Advocacy
Henry Q Curtis (Life of the Land)
Warren S. Bollmeier II (HREA)
Mark Duda (HSEA)

[1] The "Hawaiian Electric Companies" are Hawaiian Electric Company, Inc., Hawaii Electric Light Company, Inc., and Maui Electric Company, Limited.

PUC-IR-17

Ref: HECO Companies' Response to HSEA-HREA-IR-6.

According to the HECO Companies' response to HSEA-HREA-IR-6:

> "Customers receiving a non-customer-initiated installation of an AMI meter during the general AMI roll-out period, but before the completion of a full roll-out of AMI meters, will remain on their current rate schedule or may choose to opt into the appropriate TOU billing rate. Customers will be able to opt into a TOU rate by notifying the utility company of their desire to do so with the appropriate TOU rate effective the next billing cycle after the provision of notice to the company."

According to Section 15 of the HCEI Agreement, *Pricing Principles and Programs,* "The parties also believe that participation in pricing programs should generally be on an opt-out basis."

Please provide a full and detailed narrative explanation of why the HECO Companies propose that TOU rates be opt-in during the roll-out period rather than opt-out or mandatory.

Hawaiian Electric Companies' Response:

As discussed in HECO T-7, page 8, the Hawaiian Electric Companies propose that Time-of-Use ("TOU") rates be opt-in during the roll-out period in order to reduce the administrative challenges of the billing process while still providing customers the choice to subscribe to TOU rates. During the roll-out period, meter conversions will be affected by installer work rate, schedule changes, and other challenges in the field. Tracking the meter conversions will be a significant task. It will be administratively easier to adjust customer rate schedules after all of the AMI meters have been installed. However, the Companies recognize that TOU rate options will likely be available to customers both before and during the roll-out period, and the Hawaiian Electric Companies will accommodate those customers who elect TOU rates.

PUC-IR-18

Ref: HECO Companies' Response to HSEA-HREA-IR-6.

According to the HECO Companies' response to HSEA-HREA-IR-6:

> "At the completion of the general roll-out of AMI, all commercial customers will be placed on a mandatory TOU rate subject to the availability of the Meter Data Management System (MOMS) and a Customer Information System (CIS) capable of handling the volume of transactions required; and in accordance with the HECO Companies' commitments under the Energy Agreement with the State of Hawaii and the Division of Consumer Advocacy, section 15, Pricing Principles and Programs."

According to Section 15 of the HCEI Agreement, *Pricing Principles and Programs,* "The parties also believe that participation in pricing programs should generally be on an opt-out basis."

A. After the general AMI roll-out, do the HECO Companies propose that TOU rates be opt-in, opt-out, or mandatory for noncommercial customers?
B. Have the HECO Companies considered or attempted to quantify the difference in participation rate and peak demand reduction for scenarios in which TOU rates are (a) opt-in, (b) opt-out, or (c) mandatory for all customers? If so, please provide the results of any such studies or analysis.
C. Please provide a full and detailed narrative explanation of why the HECO Companies propose that TOU rates for commercial customers be mandatory, rather than opt-out, at the completion of the AMI roll-out.

Hawaiian Electric Companies' Response:

A. As discussed in HECO T-7, page 9, the Hawaiian Electric Companies are still considering how Time-of-Use ("TOU") rates would apply to non-commercial customers after the general AMI roll-out. The Hawaiian Electric Companies have not yet assessed the potential impact to customer bills and how different groups of non-commercial customers (e.g., low energy users, average energy users, and high energy users) would be affected by TOU rates. The Hawaiian Electric Companies will consider applying TOU rates on a mandatory basis to non-commercial customers.

B. As discussed in HECO T-7, page 9, the Hawaiian Electric Companies have not studied the difference in participation rate and peak demand reduction between TOU rate implementations that are opt-in, opt-out, or mandatory.

C. As discussed in HECO T-7, pages 9-10, the Hawaiian Electric Companies propose that TOU rates for commercial customers be mandatory at the completion of the AMI roll-out because it is expected that the TOU rates will provide price signals for efficient energy consumption. The AMI Network is expected to provide information on customer energy usage such that commercial customers can effectively respond to the TOU rates, manage their energy consumption, and reduce their electric bills, if they choose to do so. The Companies prefer not to offer customers an option where the pricing signal may be less clear and where the resulting energy consumption may be less efficient.

PUC-IR-19

Ref:

Please describe all efforts by the HECO Companies to obtain low-interest loans or funding for some or all of the proposed AMI cost with funds from the American Recovery and Reinvestment Act and other federal sources. Describe the HECO Companies' current perception of the likely level of such low-interest loans or federal funding.

Hawaiian Electric Companies' Response:

The Hawaiian Electric Companies submitted proposals under several Funding Opportunity Announcements ("FOA") but did not submit funding proposals for the AMI Project under the American Recovery and Reinvestment Act (ARRA) or other sources. The Hawaiian Electric Companies may submit a proposal to the Department of Energy (DOE) with an AMI component under a Funding Opportunity Announcement (FOA) such as DE-FOA-0000058 (Smart Grid Investment Grant Program) or another available federal funding source. The Hawaiian Electric Companies are unable to estimate the likely level of low-interest loans or federal funding, as the process of obtaining such low-interest loans or federal funding under the ARRA is highly competitive.

PUC-IR-20

Ref:

Act 155 (2009) requires that the energy resources coordinator:

> "Assist public and private agencies, in coordination with the department of budget and finance, in accessing the use of special purpose revenue bonds to finance the engineering, design, and construction of transmission projects and infrastructure that are deemed critical to the development of renewable energy."

Please describe the anticipated use of the financing provisions in Act 155. How much could these provisions reduce the cost of financing the AMI project?

Hawaiian Electric Companies' Response:

The Hawaiian Electric Companies strive to maintain a balanced capital structure by targeting certain proportions of debt and/or equity, with the objective of reaching their capital structure targets over time. In general, the Hawaiian Electric Companies fund their capital expenditures and other cash requirements from internally generated funds and/or short-term borrowings. When short-term debt levels rise, the Hawaiian Electric Companies look to the issuance of equity and/or long-term debt (special purpose revenue bonds) to replace short-term debt, striving to maintain a balanced capital structure.

Short-term debt is considered "temporary" in nature and at some point is replaced with more "permanent" long-term financing. When long-term debt financing is needed, an evaluation of the type of debt to pursue (taxable versus tax-exempt revenue bonds) is done. This comparative analysis takes into account interest rates for taxable versus tax-exempt debt and is also impacted by the tax depreciation treatment of the assets being financed. In addition, the Internal Revenue Servuce has rules regarding the assets eligible to be financed from the proceeds of revenue bonds including rules relating to the in-service dates of capital projects and the timing

of eligible project costs. As a result, project eligibility and project cost eligibility generally are evaluated at the point when revenue bond financing is being considered.

Moreover, legislative authorizations for revenue bonds have required Commission approval of the projects to be financed from the proceeds of revenue bonds. Currently, the Hawaiian Electric Companies do not know what, if any, special purpose revenue bond financing (as described in Act 155) might be used for the AMI project.

PUC-IR-21

Ref: HECO Companies' Response to CA-IR-12.

In response to CA-IR-12, the HECO Companies described how AMI meters for most customers will provide interval data every 60 minutes.

A. Can these intervals be shortened without replacing the customers' AMI meters?
B. To what extent would it be more costly to upgrade AMI systems to provide fifteen-minute or five-minute read intervals in the future than to do so when the AMI system is being deployed?
C. Please describe the future process of upgrading the AMI to provide fifteen minute and five minute read intervals for all customers.

Hawaiian Electric Companies' Response:

A. The delivered intervals can be shortened without replacing or even visiting the AMI meters. As provided within Exhibit E, Section 3.3.5 of the Sensus Metering Agreement, "*The AMI System shall deliver daily, hourly, 15 minute, and 5 minute Meter Data as selected by HECO*". Exhibit E, Section 3.3.6 further provides: "*HECO shall be able to program or configure the Meter data delivery rates over the air using AMI system for all meters.*"

B. The generation, transmission, storage, and processing of larger amount of data associated with shorter read intervals would result in higher AMI system costs. The Hawaiian Electric Companies have not performed a cost evaluation to determine the extent to which the proposed AMI cost would increase due to a requirement to provide shorter intervals than are being contemplated by the Hawaiian Electric Companies for residential and commercial & industrial meters.

C. The proposed AMI system will be initially configured to capture one hour interval data for the majority of the Hawaiian Electric Companies' meters. Only the commercial &

industrial meters and other special study meters (Class Load, etc.) will be configured to capture 15-minute interval data. As clarified in part a to this response, no meter upgrade is required to provide fifteen-minute or five-minute read intervals. However, other portions of the AMI system would need to be upgraded if shorter read intervals are required. These two components of the AMI system are the AMI Network and the Meter Data Management System ("MDMS").

As explained in part c to the Hawaiian Electric Companies' response to CA-IR-12, increasing the meter data acquisition rate, to a rate higher than the design criteria for the AMI network ("AMI Network Design"), which was provided as Exhibit D of the Sensus Agreement, would cause AMI system performance degradation. To address this problem, additional Tower Gateway Basestations ("TGB") would need to be installed at new locations or at existing TGB sites. As shown within the AMI Network Design, the USMO HI0135 Prince Kuhio TGB site is a proposed TGB site where three directional TGB's are co-located. Additional TGB's could be installed in the future if additional network capacity is needed to support a new requirement for shorter read intervals.

The MDMS storage and processing capability are based on the expected AMI system one hour and 15-minute read intervals described above. Increasing the meter data acquisition rate to a rate higher than the designed criteria, would require additional MDMS hardware to process, validate, and store the additional data. The MDMS is a modular system; therefore, the additional hardware resources can be added, in parallel, at a future date if they are required to meet new operational requirements.

PUC-IR-22

Ref: HECO Companies' Response to CA-IR-3.

According to the HECO Companies' response to CA-IR-3:

> "The Companies' estimate of quantifiable costs and benefits indicates that the AMI Project has a non-discounted Benefit/Cost Ratio of 1.31 for HECO, 1.12 for MECO, and 1.10 for HELCO. Simple payback periods for HECO, MECO, and HELCO are 13, 17, and 20 years respectively as shown in Attachment 4 to this response. The Companies' estimate of quantifiable costs and benefits indicates that the AMI Project has a discounted Benefit/Cost Ratio of 0.73 for HECO, 0.64 for MECO, and 0.64 for HELCO."

The following table is from Attachment 1 of the HECO Companies' response to CA-IR-3:

	[1] AMI Benefit Cost Evaluation	
	[2] B/C Ratio Discounted	B/C Ratio Stright Line
HECO	[3] 0.94	1.42
HELCO	[3] 0.71	1.00
HELCO	[3] 0.81	1.17

Benefit Cost Ratio Analysis using the Estimated Costs and the Estimated Quantifiable Benefits for the AMI Project for the years 2010 through 2029

[1] from the AMI Model V1.1.

[2] A discount Rate of 8.62% was used for this analysys

[3] Refer to CA-IR 2 - AMI Model V1.1, Section XIII.D.3

A. Please reconcile the different cost-benefit ratios in the narrative response and the table.

B. Please provide workpapers and spreadsheets used to calculate cost-benefit ratios and payback periods, with active formulas and all cells unlocked.

Hawaiian Electric Companies' Response:

A. The benefit/cost ("B/C") information listed within the narrative within part a. of the Hawaiian Electric Companies' response to CA-IR-3 was incorrect. The correct B/C information is:

> *The Companies' estimate of quantifiable costs and benefits indicate that the AMI Project has a non-discounted Benefit/Cost Ratio of 1.42 for HECO, 1.17 for MECO, and 1.00 for HELCO. Simple payback periods for HECO, MECO, and HELCO are 13, 17, and 20 years respectively as shown in Attachment 4 to this response. The Companies' estimate of*

quantifiable costs and benefits indicate that the AMI Project has a discounted Benefit/Cost Ratio of 0.94 for HECO, 0.81 for MECO, and 0.71 for HELCO.

Due to a typographical error, the Companies' included two B/C Ratio entries for HELCO and no entry for MECO in the Attachment 1 of the Hawaiian Electric Companies' response to CA-IR-3 in this docket. The corrected Benefit/Cost Ratio Table for the AMI Project is provided in Attachment 1 to this response.

B. The calculations used to estimate the cost-benefit ratios and payback periods are documented within Section XIII.D.3 of the AMI model, which is submitted as Attachment 1 in the Hawaiian Electric Companies' response to PUC-IR-23 ("AMI Model"). The AMI Model narrative, provided as Attachment 2 to the response to CA-IR-2, explains the calculations within the AMI Model. All active formulas and cells within the AMI Model are unlocked.

	[1] AMI Benefit Cost Evaluation	
	[2] B/C Ratio Discounted	[2] B/C Ratio Non-Discounted
HECO	[3] 0.94	1.42
HELCO	[3] 0.71	1.00
[4] MECO	[3] 0.81	1.17

Benefit Cost Ratio Analysis using the Estimated Costs and the Estimated Quantifiable Benefits for the AMI Project for the years 2010 through 2029

[1] from the AMI Model V1.1.

[2] A discount Rate of 8.62% was used for this analysys

[3] Refer to CA-IR 2 - AMI Model V1.1, Section XIII.D.3

[4] MECO was incorrectly labeled as HELCO within in Attachement 1 to the response to CA-IR-3

PUC-IR-23

Ref: HECO Companies' Response to CA-IR-2.

Please provide the worksheets in Attachment 1 of the HECO Companies' response to CA-IR-2 in Excel and not PDF format, with active formulas and all cells unlocked.

Hawaiian Electric Companies' Response:

A. The AMI Model, as delivered in the Hawaiian Electric Companies' response to CA-IR-2, was delivered in "read only" mode to prevent an inadvertent alteration of the originally delivered file. Attachment 1 to this response provides the AMI Model in Microsoft Excel format with all active formulas and cells unlocked. It is submitted subject to the protective order filed April 15, 2009, in this docket.

PUC-IR-24

Ref: HECO Companies' Response to CA-IR-35.

Please provide the worksheets in and underlying Attachment 1 of the HECO Companies' response to CA-IR-35 (revised Exhibit 19) in Excel and not PDF format, with active formulas and all cells unlocked.

Hawaiian Electric Companies' Response:

The electronic version of the Hawaiian Electric Companies' response to CA-IR-35 (revised Exhibit 19) is submitted, in Microsoft Excel format, with active formulas and all cells unlocked, as Attachment 1 to this response. All information presented within Attachment 1 to this response originates from the AMI model presented as Attachment 1 of the response to PUC-IR-23.